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TI Preparation of N-alkyl-a-amino acids and their derivatives as  
intermediates for carboxyalkyl dipeptides

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PA ADIR, Fr.

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DT Patent

LA French

IC ICM C07C099-00

ICS C07C101-12; C07D209-42

CC 34-2 (Amino Acids, Peptides, and Proteins)

Section cross-reference(s): 1

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PI	EP 309324	A1	19890329	EP 1988-402340	19880916 <--
	EP 309324	B1	19910313		
	R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
	FR 2620700	A1	19890324	FR 1987-12902	19870917
	FR 2620700	B1	19900601		
	CA 1341380	C	20020806	CA 1988-577079	19880907
	DK 8805152	A	19890318	DK 1988-5152	19880915
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PRAI	FR 1987-12902	A	19870917		
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CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

EP 309324	ICM	C07C099-00
	ICS	C07C101-12; C07D209-42
	IPCI	C07C0099-00 [ICM,4]; C07C0101-12 [ICS,4]; C07D0209-42 [ICS,4]; C07D0209-00 [ICS,4,C*]
	IPCR	A61K0038-55 [I,C*]; A61K0038-55 [I,A]; A61P0003-00 [I,C*]; A61P0003-00 [I,A]; A61P0009-00 [I,C*]; A61P0009-00 [I,A]; A61P0009-12 [I,A]; B01J0031-02 [I,C*]; B01J0031-02 [I,A]; C07B0031-00 [I,C*]; C07B0031-00 [I,A]; C07B0057-00 [I,C*]; C07B0057-00 [I,A]; C07B0061-00 [I,C*]; C07B0061-00 [I,A]; C07C0057-00 [I,C*]; C07C0057-145 [I,A]; C07C0067-00 [I,C*]; C07C0067-00 [I,A]; C07C0227-00 [I,C*]; C07C0227-00 [I,A]; C07C0227-18 [I,A]; C07C0227-32 [I,A]; C07C0227-34 [I,A]; C07C0229-00 [I,C*]; C07C0229-16 [I,A]; C07D0209-00 [I,C*]; C07D0209-42 [I,A]; C07K0001-00 [I,C*]; C07K0001-02 [I,A]; C07K0005-00 [I,C*]; C07K0005-06 [I,A]; C07K0014-81 [I,C*]; C07K0014-81 [I,A]
FR 2620700	IPCI	C07C0101-18 [ICM,4]; C07K0005-06 [ICS,4]; C07K0005-00 [ICS,4,C*]; A61K0037-02 [ICA,4]
	IPCR	A61K0038-55 [I,C*]; A61K0038-55 [I,A]; A61P0003-00

[I,C\*]; A61P0003-00 [I,A]; A61P0009-00 [I,C\*];  
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C07K0005-00 [I,C\*]; C07K0005-06 [I,A]; C07K0014-81  
[I,C\*]; C07K0014-81 [I,A]

CA 1341380 IPCI C07D0217-02 [ICM,7]; C07D0217-00 [ICM,7,C\*];  
C07D0209-04 [ICS,7]; C07D0209-00 [ICS,7,C\*];  
C07K0005-06 [ICS,7]; C07K0005-00 [ICS,7,C\*]

IPCR A61K0038-55 [I,C\*]; A61K0038-55 [I,A]; A61P0003-00  
[I,C\*]; A61P0003-00 [I,A]; A61P0009-00 [I,C\*];  
A61P0009-00 [I,A]; A61P0009-12 [I,A]; B01J0031-02  
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DK 8805152 IPCI C07C0099-00 [ICM,4]

IPCR A61K0038-55 [I,C\*]; A61K0038-55 [I,A]; A61P0003-00  
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A61P0009-00 [I,A]; A61P0009-12 [I,A]; B01J0031-02  
[I,C\*]; B01J0031-02 [I,A]; C07B0031-00 [I,C\*];  
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C07C0057-00 [I,C\*]; C07C0057-145 [I,A]; C07C0067-00  
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C07K0005-00 [I,C\*]; C07K0005-06 [I,A]; C07K0014-81  
[I,C\*]; C07K0014-81 [I,A]

AU 8822356 IPCI C07C0101-20 [ICM,4]; C07C0099-00 [ICS,4]

IPCR A61K0038-55 [I,C\*]; A61K0038-55 [I,A]; A61P0003-00  
[I,C\*]; A61P0003-00 [I,A]; A61P0009-00 [I,C\*];  
A61P0009-00 [I,A]; A61P0009-12 [I,A]; B01J0031-02  
[I,C\*]; B01J0031-02 [I,A]; C07B0031-00 [I,C\*];  
C07B0031-00 [I,A]; C07B0057-00 [I,C\*]; C07B0057-00  
[I,A]; C07B0061-00 [I,C\*]; C07B0061-00 [I,A];  
C07C0057-00 [I,C\*]; C07C0057-145 [I,A]; C07C0067-00  
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C07K0005-00 [I,C\*]; C07K0005-06 [I,A]; C07K0014-81  
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JP 01110651 IPCI C07C0101-18 [ICM,4]; B01J0031-02 [ICS,4]; C07C0099-00  
[ICS,4]; C07K0001-02 [ICS,4]; C07K0001-00 [ICS,4,C\*];  
C07K0005-06 [ICS,4]; C07K0005-00 [ICS,4,C\*];

A61K0037-64 [ICA,4]; C07B0057-00 [ICA,4]; C07B0061-00 [ICA,4]

IPCR A61K0038-55 [I,C\*]; A61K0038-55 [I,A]; A61P0003-00 [I,C\*]; A61P0003-00 [I,A]; A61P0009-00 [I,C\*]; A61P0009-00 [I,A]; A61P0009-12 [I,A]; B01J0031-02 [I,C\*]; B01J0031-02 [I,A]; C07B0031-00 [I,C\*]; C07B0031-00 [I,A]; C07B0057-00 [I,C\*]; C07B0057-00 [I,A]; C07B0061-00 [I,C\*]; C07B0061-00 [I,A]; C07C0057-00 [I,C\*]; C07C0057-145 [I,A]; C07C0067-00 [I,C\*]; C07C0067-00 [I,A]; C07C0227-00 [I,C\*]; C07C0227-00 [I,A]; C07C0227-18 [I,A]; C07C0227-32 [I,A]; C07C0227-34 [I,A]; C07C0229-00 [I,C\*]; C07C0229-16 [I,A]; C07D0209-00 [I,C\*]; C07D0209-42 [I,A]; C07K0001-00 [I,C\*]; C07K0001-02 [I,A]; C07K0005-00 [I,C\*]; C07K0005-06 [I,A]; C07K0014-81 [I,C\*]; C07K0014-81 [I,A]

ZA 8806933 IPCI C07C [ICM,4]; C07K [ICS,4]; A61K [ICS,4]

IPCR A61K0038-55 [I,C\*]; A61K0038-55 [I,A]; A61P0003-00 [I,C\*]; A61P0003-00 [I,A]; A61P0009-00 [I,C\*]; A61P0009-00 [I,A]; A61P0009-12 [I,A]; B01J0031-02 [I,C\*]; B01J0031-02 [I,A]; C07B0031-00 [I,C\*]; C07B0031-00 [I,A]; C07B0057-00 [I,C\*]; C07B0057-00 [I,A]; C07B0061-00 [I,C\*]; C07B0061-00 [I,A]; C07C0057-00 [I,C\*]; C07C0057-145 [I,A]; C07C0067-00 [I,C\*]; C07C0067-00 [I,A]; C07C0227-00 [I,C\*]; C07C0227-00 [I,A]; C07C0227-18 [I,A]; C07C0227-32 [I,A]; C07C0227-34 [I,A]; C07C0229-00 [I,C\*]; C07C0229-16 [I,A]; C07D0209-00 [I,C\*]; C07D0209-42 [I,A]; C07K0001-00 [I,C\*]; C07K0001-02 [I,A]; C07K0005-00 [I,C\*]; C07K0005-06 [I,A]; C07K0014-81 [I,C\*]; C07K0014-81 [I,A]

AT 61567 IPCI C07C0227-18 [ICM,5]; C07C0227-00 [ICM,5,C\*]; C07C0229-24 [ICS,5]; C07C0229-00 [ICS,5,C\*]; C07D0209-42 [ICS,5]; C07D0209-00 [ICS,5,C\*]

IPCR C07C0227-00 [I,C\*]; C07C0227-18 [I,A]; C07C0229-00 [I,C\*]; C07C0229-24 [I,A]; C07D0209-00 [I,C\*]; C07D0209-42 [I,A]

ES 2034324 IPCI C07C0227-18 [ICM,5]; C07C0227-00 [ICM,5,C\*]; C07C0229-24 [ICS,5]; C07C0229-00 [ICS,5,C\*]; C07D0209-42 [ICS,5]; C07D0209-00 [ICS,5,C\*]

IPCR A61K0038-55 [I,C\*]; A61K0038-55 [I,A]; A61P0003-00 [I,C\*]; A61P0003-00 [I,A]; A61P0009-00 [I,C\*]; A61P0009-00 [I,A]; A61P0009-12 [I,A]; B01J0031-02 [I,C\*]; B01J0031-02 [I,A]; C07B0031-00 [I,C\*]; C07B0031-00 [I,A]; C07B0057-00 [I,C\*]; C07B0057-00 [I,A]; C07B0061-00 [I,C\*]; C07B0061-00 [I,A]; C07C0057-00 [I,C\*]; C07C0057-145 [I,A]; C07C0067-00 [I,C\*]; C07C0067-00 [I,A]; C07C0227-00 [I,C\*]; C07C0227-00 [I,A]; C07C0227-18 [I,A]; C07C0227-32 [I,A]; C07C0227-34 [I,A]; C07C0229-00 [I,C\*]; C07C0229-16 [I,A]; C07D0209-00 [I,C\*]; C07D0209-42 [I,A]; C07K0001-00 [I,C\*]; C07K0001-02 [I,A]; C07K0005-00 [I,C\*]; C07K0005-06 [I,A]; C07K0014-81 [I,C\*]; C07K0014-81 [I,A]

JP 07206792 IPCI C07C0229-16 [ICM,6]; C07C0229-00 [ICM,6,C\*]; C07C0057-145 [ICS,6]; C07C0057-00 [ICS,6,C\*]; C07C0227-34 [ICS,6]; C07C0227-00 [ICS,6,C\*]; A61K0038-55 [ICA,6]; C07B0057-00 [ICA,6]; C07M0007-00 [ICI,6]

IPCR A61K0038-55 [I,C\*]; A61K0038-55 [I,A]; A61P0003-00 [I,C\*]; A61P0003-00 [I,A]; A61P0009-00 [I,C\*]; A61P0009-00 [I,A]; A61P0009-12 [I,A]; B01J0031-02 [I,C\*]; B01J0031-02 [I,A]; C07B0031-00 [I,C\*];

C07B0031-00 [I,A]; C07B0057-00 [I,C\*]; C07B0057-00 [I,A]; C07B0061-00 [I,C\*]; C07B0061-00 [I,A]; C07C0057-00 [I,C\*]; C07C0057-145 [I,A]; C07C0067-00 [I,C\*]; C07C0067-00 [I,A]; C07C0227-00 [I,C\*]; C07C0227-00 [I,A]; C07C0227-18 [I,A]; C07C0227-32 [I,A]; C07C0227-34 [I,A]; C07C0229-00 [I,C\*]; C07C0229-16 [I,A]; C07D0209-00 [I,C\*]; C07D0209-42 [I,A]; C07K0001-00 [I,C\*]; C07K0001-02 [I,A]; C07K0005-00 [I,C\*]; C07K0005-06 [I,A]; C07K0014-81 [I,C\*]; C07K0014-81 [I,A]

OS CASREACT 111:115738; MARPAT 111:115738

GI



- AB (S,S)-HO<sub>2</sub>CCHMeNHCHR<sub>1</sub>CO<sub>2</sub>R<sub>2</sub> (I; R<sub>1</sub>,R<sub>2</sub> = lower alkyl), useful as intermediates for carboxyalkyl dipeptides R<sub>3</sub>CO-Q-COCHMeNHCHR<sub>1</sub>CO<sub>2</sub>R<sub>2</sub> (II; R<sub>3</sub> = H, alkyl; Q = residue of indoline, isoindoline, tetrahydroquinoline, tetrahydroisoquinoline, etc.), esp. perindopril and its derivs., are prepd. via (S)-H<sub>2</sub>NCHMeO<sub>2</sub>CH<sub>2</sub>Ph (III) with XCHR<sub>1</sub>CO<sub>2</sub>R<sub>2</sub> (IV; X = halo), sepn. of (S,S) isomer from the resulting V, and deprotection by hydrogenolysis. III (prepn. given) was reacted with IV (X = Br) in DMF contg. Et<sub>3</sub>N to give V (R<sub>1</sub> = Pr, R<sub>2</sub> = Et), from which the (S,S) isomer was sepd. This was hydrogenolyzed to give (S,S)-I (R<sub>1</sub> = Pr, R<sub>2</sub> = Et).
- ST alkylamino acid prepn; carboxyalkyl dipeptide intermediate; perindopril intermediate alkylamino acid
- IT Peptides, preparation  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(di-, carboxyalkyl, prepn. of, intermediates for, alkylamino acids as)
- IT Amino acids, preparation  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(N-alkyl, prepn. of, as intermediates for carboxyalkyl dipeptides)
- IT 615-83-8, Ethyl 2-bromovalerate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(alkylation by, of alanine deriv.)
- IT 100-51-6, Benzyl alcohol, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(esterification of, with alanine)
- IT 56-41-7, Alanine, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(esterification of, with benzyl alc.)
- IT 82834-16-0D, Perindopril, derivs.  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(intermediates for, alkylamino acids as)
- IT 17831-01-5P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(prepn. and alkylation of, by haloalkanoic acid deriv.)
- IT 42854-62-6P 122264-96-4P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(prepn. and decompn. of)
- IT 112243-70-6P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(prepn. and deprotection of)
- IT 112243-71-7P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of)
- IT 82834-12-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(prepn. of, as intermediate for carboxyalkyl dipeptides)